DOCUMENT RESUME

ED 191 657 SE 031 004

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TITLE Skills Achievement Monitoring: Assumptions and Components.
PUB DATE May 80
NOTE 17p.; Paper presented at the Spring Conference of the National Consortium on Testing (Washington, DC, May 1980). Contains occasional broken type.

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Achievement Tests; Educational Objectives; Educational Testing; Elementary Secondary Education; Instructional Improvement; Instructional Materials; *Mathematics Education; Mathematics Instruction; Program Descriptions; *Skill Analysis; *Skill Development; Staff Development; *Testing; Writing (Composition); *Writing Skills

ABSTRACT

The Skills Achievement Monitoring (SAM) program, developed by teachers and administrators in the public schools of Fitchburg, Massachusetts, is described. The program, used in writing and mathematics, is based on three assumptions: (1) that classroom teachers are the primary untapped resource in schools, (2) that tests of any kind must be used as the imperfect measures of student learning which they are, and (3) that teacher efforts to focus their instruction must be encouraged and supported. The five key components of SAM - skill expectation, focused instruction, focused monitoring, instructional resources, and staff development - are explained and discussed. SAM is described as a dynamic program designed to link effectively instruction and testing in a symbiotic relationship. Instruction is the vehicle for helping students learn, while testing is the vehicle for monitoring the success of instruction. (Author/MK)

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ED191657

SKILLS ACHIEVEMENT MONITORING: ASSUMPTIONS AND COMPONENTS

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> "...not the city of Boston only, but the whole State, and the cause of education generally, are under a vast debt of obligation to the committees who assumed... the labor of their novel made of examination.... We venture to predict that the mode of examination, by printed questions and written answers, will constitute a new era in the history of our schools."
>
> Horace Mann, 1845

> "Most teachers of experience will admit that the evil attendant upon written tests is large, and the good accompanying them is small."
>
> Agnes M. Lathe, 1889

Throughout the history of formal education in America, written tests have been a source of vehement controversy. In every age they have been praised and vilified with men and women of good will among both the proponents and the opponents. In every age they have been charged with fostering superficiality, and anxious cramming. In every age they have been credited with motivating youngsters and fostering excellence.

In our time the testing controversy has continued without abatement. On a national level, the National Consortium on Testing is one product of that controversy; on a local level,

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Paper presented at the Spring Conference of the National Consortium on Testing, Washington, D.C., May, 1980.

SE 031 004

Skills Achievement Monitoring (SAM) is another. The former has entered the fray to promote public understanding of tests and to encourage the development of alternative assessment means; the latter has entered the fray as an alternative testing procedure designed to link instruction and testing in a symbiotic relationship.

SAM was developed by teachers and administrators in the Fitchburg Public Schools over the last five years.[1] It is based on three major assumptions and consists of five key components. That classroom teachers represent the primary untapped resource in our schools, that tests of any kind must be used as the imperfect measures of student learning which they are, and that teacher efforts to focus their instruction must be encouraged and supported - these are the assumptions. The five components are skill expectations, focused instruction, focused monitoring, instructional resources, and staff development.

Classroom Teachers: Untapped Resource

Over the last twenty years millions of federal dollars have been spent to develop "teacher-proof" instructional materials. These materials, to a large extent, were designed to insure student learning in spite of the teacher. Just as physicians used to treat their registered nurses as office receptionists, so the developers of "teacher-proof" materials treated teachers. They expected teachers to use their materials, as directed.

In contrast to this mechanistic view of teachers and teaching, the developers of SAM felt that teachers were most

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[1] For further information on Fitchburg's SAM Programs see: Reidy, 1978; Wallace and Reidy, 1978; Reidy and Hord, 1979; Eresh and Reidy, 1980; and Reidy and Pedulla, 1980.

familiar with the opportunities and limitations of the classroom setting. Accordingly, professional teachers must make the critical decisions about what materials to use and how to use them to help the youngsters in their classrooms learn particular skills, concepts, and generalizations. Students will learn because of, not in spite of, the efforts of classroom teachers. Enhancing their professional self-esteem is a necessary step in releasing their professional talents and helping them improve their teaching skills.

Multiple Imperfect Measures

To measure learning is to measure a psychological abstraction. Teachers and students cannot directly observe learning; they can only observe evidence that learning has occurred. Thus statements about student learning are essentially statements of inference. For example, to make a statement about a student's learned ability to effectively use transitions between sentences in paragraphs, it is necessary to examine samples of the student's writing or to examine her or his performance on editing exercises which involve the use of transitions. On the basis of this examination of evidence, one then infers whether or how well the student has learned to effectively use transitions. In judging the accuracy and validity of any inference, it is necessary to examine the quality of the evidence and the appropriateness of that evidence as a basis for the inference. It is a central assumption of SAM that all pieces of evidence used in making inferences about student learning should be

conceptualized as imperfect measures and that no single measure is, by itself, adequate and appropriate for such inferences.

The monitoring component of SAM is designed to provide one imperfect source of data for teacher inferences about student skill achievement. Data generated from the SAM tests and rating sheets should be considered indicative, not definitive. Teachers should be encouraged to use this data along with other measures such as daily classwork, homework, or projects to gauge progress and plan instruction. When teachers use multiple imperfect measures as the basis of their learning inferences, they increase the likelihood that those inferences will be accurate. Furthermore, when teachers themselves choose which measures yield the most appropriate data for their inferences, they increase the likelihood that those inferences will be correct, i.e. valid.

In the everyday world of the classroom, the results of SAM tests will either confirm or challenge inferences already made by teachers, ideally made on the basis of multiple data sources. When such data is incongruent with other information, teachers should take a closer look. They should not assume the formal test data is the best inference base, nor should they reject those data without thought. The important point is that teachers make inferences about student skill achievement. They must not allow any single measure to become anything other than one basis for their inferences. They must not allow any measure to serve as a replacement for their professional judgment.

Teacher Support Activities

Teacher efforts to focus their instruction on a manageable set of skill expectations and to continually strive for improvement in their teaching must be supported through the provision of resource materials and staff development activities. By itself, the provision of instructional resource materials is not sufficient. Teachers must feel confident not only to use such materials, but also to work beyond them, adapting and enriching them to suit their own teaching styles. If such adaptations are to occur, there must be a conducive environment in which teachers can experiment and learn. Staff development activities should foster such an environment in providing opportunities for teachers to work together to improve their teaching skills and to develop and refine instructional materials.

Now that the reader is familiar with the guiding assumptions for SAM, it is appropriate to discuss the five components of this program. Again, they are skill expectations, focused instruction, focused monitoring, instructional resources, and staff development.

Skill Expectations

SAM exists to foster student learning of specific skills. Thus, the first component of SAM is a delineation of skill expectations on which instruction is to focus. This delineation of skills is not synonymous with a list of behavioral objectives, nor, on the other hand, is it equivalent to a general statement of goals. The former tends to overwhelm both teachers and students by needlessly fragmenting the goals of schooling and by

focusing instruction on what will be used as evidence of student learning rather than on learning itself. The latter tends to be so deceptively ambiguous that it provides little guidance for classroom instruction and thus, little continuity from year to year or from teacher to teacher.

What then are the characteristics of SAM skill statements? A delineation of skills for a SAM program in any subject area should, first of all, be a model of effective communication. It should be concrete, free of unnecessary jargon, and easily understandable by students, parents, teachers, administrators, school board members and other interested parties. Fitchburg's experience in both SAM-Mathematics and SAM-Writing indicates that illustrative examples are often more meaningful than the skill statements themselves.

Another characteristic of these skill statements is that the number of skills delineated be manageable from an instructional point of view. In as much as time on the learning task is a major factor in students' success at learning, it is appropriate to limit the number of skills to be learned so that adequate teacher and student time can be given to each skill. Furthermore, successive levels of skill statements should build upon one another to establish a developmental and/or pedagogical sequence of skills. With such a skill sequence, teachers can assign different youngsters to different skill levels based on their achievement rather than on their enrolled grade level. In this way teachers can communicate appropriately high expectations for each student, another factor believed critical to student

success at learning.

In writing skill lists for a SAM program, it must be recognized that skills are learned not as ends in themselves, but as tools for accomplishing further ends. For example, in mathematics one learns to multiply and divide decimal numbers as a tool for solving mathematical problems which require these basic operations. In writing, one learns to vary sentence structure and length as a tool for producing effective written communications. In a similar vein, it must be also recognized that SAM skills in any subject area should not represent the sum total of all that is taught and learned in that subject area. Fitchburg's SAM-Mathematics Skills illustrate this point in that they represent the system's core mathematics skills, i.e. skills typical students at any grade level should be able to learn given that fifty to seventy-five percent of total time allotted for mathematics instruction is devoted to teaching those skills. Other mathematical skills, concepts, and generalizations are taught and learned as part of the total mathematics curriculum, even though they are not part of SAM-Mathematics.

Finally, SAM skill lists should be written with the genuine involvement of the teaching staff so that those skills reflect the professional experience and expertise of that staff. Respect for the professionalism of classroom teachers, a necessary hallmark of any SAM program, implies that teachers, acting collectively, are the most appropriate individuals to delineate SAM skills for the students in their schools.

Focused Instruction

The second component of a SAM program is classroom instruction focused on the manageable set of skills discussed above. This component is the metaphorical heart of SAM in that instruction or teaching which provides adequate time on task does indeed help students learn. All of the other SAM components exist to establish and maintain an instructional focus for teachers and a learning focus for students.

Underlying this component of SAM is the assumption that given sufficient instructional time and appropriate instructional resources, most students can learn what the school teaches (Bloom, 1976). Put another way, good teaching does result in student success at learning (Graves, 1978). The importance of this assumption cannot be overemphasized. Only if teachers believe that students can learn the skills delineated as the first component of SAM, will they be inclined to set high expectations for their teaching, to set high achievement expectations for their students, and to provide focused instruction on those skills. Focused instruction will then lead to increasing the time on the task of learning those skills, thereby enhancing the likelihood students will learn those skills.

Focused instruction does not imply prescribed instruction. Teachers participating in a SAM program must teach the SAM skills which they collectively delineated, but how they teach those skills should be a matter of teacher discretion. Teachers are most familiar with the limits and opportunities of the classroom

setting; teachers daily interact with their students and thus, know best how each youngster learns; and teachers are professionals who typically possess wide pedagogical experience and expertise. It follows that teachers, not central office administrators, should make the decisions about instructional means for students in their classrooms.

On the other hand, focused instruction does imply that substantial teacher and student time should be spent on the task of skill learning. Time is the major school controlled variable which is directly related to successful student learning. As more and more was demanded of schools and teachers, the allocation of instructional time was widely diffused across a wide spectrum of activities. SAM programs provide for redirecting instructional time on a more manageable set of skill expectations in more concentrated doses. As concentrated instructional efforts lead to student success at learning, focused instruction becomes more attractive.

Again, it is emphasized that SAM skills should not represent the sum total of all that is taught and learned in any given subject area. The quantitative and communicative skills found in Fitchburg's SAM-Mathematics and SAM-Writing programs are skills which are generative, i.e. serve as tools for learning the content of many disciplines. Students should learn those skills and refine their skill mastery, not in a vacuum, but in the context of studying various disciplines. The awareness of the danger that instruction can become too focused is the best antidote for avoiding that danger.

Focused Monitoring

The monitoring component of SAM provides periodic feedback to students and teachers on student skill achievement. This feedback provides the teacher with one source of data and a formal occasion for making and/or reviewing inferences about student skill achievement on which he or she has focused instructional time. Viewed from another perspective, it provides teachers an opportunity to reflect on the effectiveness of their teaching in the privacy of their own classrooms or homes. Just as importantly, it reinforces the student's learning focus and serves as a stimulus for intrinsic motivation.

Formal testing is often seen by its critics as analogous to uprooting a young plant to determine the health and nurturing needs of its root system. In the process the young plant is destroyed. In SAM, monitoring tests and rating procedures are used as periodic opportunities for reviewing the appropriateness of the instructional activities being used to nurture each student's learning. Such monitoring procedures are analogous to examining the texture and color of the young plant's leaves, the strength of its stem, its freedom from insects or disease, and the characteristics of the soil in which it is growing. This information is used to nurture, not to destroy.

Like the gardener, the teacher needs multiple pieces of information to plan activities that will nurture further growth and, if necessary, to remove obstacles to growth. The SAM tests and rating sheets provide one piece of information for the

teacher's learning inferences. However, the burden of inference rests with the teacher. He or she uses the SAM data along with other information, and resolves any incongruencies among the various pieces of information in making inferences about what students have learned. He or she then uses those inferences in planning further instruction.

What then are some desirable hallmarks of SAM monitoring instruments and procedures? All reports on the results of SAM testing should be confidential. These reports should be delivered directly to each classroom teacher by someone not in line authority over that teacher. They should not be used as a tool for teacher accountability, but rather as a tool for classroom teachers in their instructional planning.

SAM tests should not be standardized. Since teachers are the users of the data yielded by these tests, they should be free to administer them in a manner most appropriate for each student in their care. For example, in Fitchburg a teacher may allow one youngster forty minutes to complete the mathematics test, while allowing most youngsters twenty-five minutes. He or she may read word problems or may individually give the test to a special needs youngster who has a learning disability in mathematics. Since the teacher is using the test data, he or she can take into account the way in which the test was administered when making learning inferences.

Tests and other monitoring instruments should be designed so as not to yield mastery/non-mastery data. Tests which do not

provide such data force teachers to use other data sources in making their inferences about student skill achievement. Further, tests should be used often enough to maintain an instructional focus, yet seldom enough to represent a minimal intrusion in the ongoing instructional program. In this regard, it is also desirable that tests be relatively short so that little time is taken away from instructional activities. Also, when rating sheets are used, they should be used with student writing produced as part of the normal classroom routine, not in addition to it.

So far as possible, all tests should be scored and all reports generated with a minimal amount of clerical work for teachers. The computer should be used as a fast, dumb clerk to score tests and produce two types of reports: an individual report for each student and a diagnostic summary for the teacher. All reports should be written in English or, at least, be easily interpretable by teachers, students, and parents. Finally, all reports should be produced and delivered to teachers no later than five school days after the testing period.

Instructional Materials and Staff Development

Although it is the responsibility and the prerogative of classroom teachers, not of central office or school level administrators, to decide on instructional means, it is the responsibility of administrators to serve an active leadership role in helping and supporting teachers' instructional efforts. The instructional materials and staff development components of

SAM are mechanisms for providing teacher support services.

In implementing a SAM program,it is important to operationalize the assumption that teachers are the critical people in helping students learn. In addition to operationalizing this assumption by involving teachers in delineating skills and in developing monitoring procedures, the school district's leaders must also provide opportunities for teachers to identify and develop instructional strategies and materials. By providing frequent occasions for this type of teacher activity, the district's leaders help create an environment conducive to fostering continuous professional growth.

In Fitchburg, for example, teacher workshops of from five to twenty-five days have resulted in several compilations of resource materials for teaching. Significantly, opportunities have been provided not only to develop these materials, but also to revise them so that they become an evolving, not a static, resource. Time for these activities has been provided during the summer, during other school vacations and occasionally on Saturdays. Most importantly, the Fitchburg School Committee has released teachers to engage in these activities during regular school hours by hiring substitute teachers. These actions clearly convey a respect for the talents of teachers and a respect for the importance of this activity.

Principals and curriculum staff should also provide links with professional staff in other school districts and educational institutions as a way of obtaining additional instructional resources. Also, they should encourage teachers with whom they

work to become involved in professional association so that they can contribute to and benefit from the work and ideas of colleagues.

In a sense, workshops for developing and revising instructional materials are staff development activities, but they are only one of many staff development efforts. Other such activities, aimed more at helping teachers refine their teaching skills or improve their personal skills in an area such as writing, include regional conferences and workshops, workshops and courses sponsored by individual schools or by the school system, visits to classrooms in other school systems, and visits to Fitchburg classrooms by teachers working in other school systems.

Conclusion

Skills Achievement Monitoring (SAM) is a dynamic program designed to effectively link instruction and testing in a symbiotic relationship. In SAM, instruction is the vehicle for helping students learn, while testing is the vehicle for monitoring the success of instruction. Significantly, testing in a SAM program does not denigrate teacher inferences about student learning, but rather enhances the quality of those inferences and their importance as a basis for instructional planning.

Based on respect for the professional experiences and expertise of classroom teachers, on a recognition of both formal and informal tests as imperfect measures of learning, and on an

understanding of the importance of providing support to teachers as they focus their instructional activities, SAM provides a structure which encourages and assists teachers in making their instruction more effective and their inferences about student learning more accurate. Once implemented, SAM maintains an instructional focus for teachers and a learning focus for students which, in turn, enhances student success at learning.

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